

REMARKS

Status of the Application

In the Final Office Action dated November 28, 2007, Claims 1-13 were rejected. Claims 6, 8, 10, and 11 are herein amended to correct minor typographical errors. Thus, Claims 1-13 are pending in this Application. No new matter was added.

Rejections Under 35 U.S.C. § 103(a)

Examiner rejects Claims 1-5 and 7-13 under 35 U.S.C. § 103(a) as being obvious in view of U.S. Patent No. 3,892,714 to Sampson et al. (hereinafter "Sampson"), and further rejects Claim 6 under 35 U.S.C. § 103(a) as being obvious in view of Sampson further in view of U.S. Patent No. 6,130,286 to Thomas et al. (hereinafter "Thomas"). More specifically, Examiner asserts that Sampson teaches all limitations of the rejected claims with the exception of the limitation in Claim 6 requiring component b) to be a compound selected from the group of recited compounds. Examiner further asserts that this limitation of Claim 6 is taught by Thomas and that it would have been obvious to one skilled in the art to combine the teachings of Sampson and Thomas to arrive at the present invention. Applicants herein demonstrate that Sampson fails to teach, suggest, or otherwise make obvious the asserted claim limitations and that Thomas fails to make obvious the additional limitation of Claim 6 in conjunction with Sampson, and thus respectfully traverse these rejections.

"To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art" (MPEP § 2143.03, citing *In re Royoka*, 490 F.2d 981 (CCPA 1974)). Here, Sampson, the art cited by Examiner, fails to do so, and thus *prima facie* obviousness has not been established. First, independent Claim 1 includes a limitation requiring the hydroxy-functional (meth)acrylic copolymer A) to be obtained by copolymerizing a monomer mixture that includes at least one cycloaliphatic ester of a free-radically copolymerizable olefinically unsaturated carboxylic acid (component b)). Sampson nowhere discloses such a component. In fact, Sampson does not even make the slightest suggestion that such a component would be useful in the

disclosed invention. Sampson merely discloses that the polymer composition comprises "two or more ethylenically unsaturated monomers at least one of which contains an [sic] hydroxyl group" (Sampson at 1:13-15). Moreover, Sampson gives as examples of such second ethylenically unsaturated monomers "styrene, vinyl toluene, methyl methacrylate, vinyl acetate and butyl methacrylate" (Sampson at 2:37-39), none of which are a cycloaliphatic ester of an olefinically unsaturated carboxylic acid. Given such a disclosure, Sampson fails to teach or even suggest this limitation of independent Claim 1. Since, as stated above, "[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art," Sampson therefore fails to make obvious this claim.

Moreover, Sampson's disclosure of a broad genus of possible compounds fails to make obvious the specific subgenus claimed in the present application. "The fact that a claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness," (MPEP § 2144.08.II., citing *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994)). Applying this rule directly to chemical compounds, the court has held that "[t]he fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious" (*In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994)). Instead the examiner must perform a complete and proper obviousness analysis, which "requires consideration of 'whether the prior art would also have revealed that in making or carrying out [the claimed invention], those of ordinary skill would have a reasonable expectation of success'" (*In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991)). Said another way, in a genus/subgenus situation "a *prima facie* case of unpatentability requires that the teachings of the prior art suggest *the claimed compounds* to a person of ordinary skill in the art" (*In re Jones*, 958 F.2d 347, 351 (Fed. Cir. 1992)). In performing such an obviousness analysis, the examiner must also "consider any teaching or suggestion in the reference of a preferred species or subgenus that is significantly different in structure from the claimed species or subgenus . . . [which] may weigh against selecting the claimed species or subgenus and thus against a determination of obviousness" (MPEP §

2144.08.II.A.4.(c), citing *In re Baird*, 16 F.3d 380, 382-83, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994)). Such adverse teachings can arise not only from specific statements of preferred species in the specification, but also can arise from the choice of compounds used in the Examples of the prior art patent (see *In re Jones*, 958 F.2d 347, 350 (Fed. Cir. 1992)). It must also be noted that it is the examiner “who bears the initial burden of factually supporting any *prima facie* conclusion of obviousness,” and, as such, the examiner cannot simply make a conclusory statement of obviousness, but rather “must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not” (MPEP § 2142).

Under this legal framework, Examiner has failed to make out a *prima facie* case of obviousness of the present invention in view of Sampson. As discussed above, Sampson merely discloses that the polymer composition comprises “two or more ethylenically unsaturated monomers at least one of which contains an [sic] hydroxyl group” (Sampson at 1:13-15). Such a disclosure clearly describes a large genus of possible monomers, in which Examiner contends the subgenus defined by component b) of the present application falls. However, as stated above, this fact alone is insufficient to arrive at a finding of obviousness of the claimed subgenus. Instead, Examiner must determine and demonstrate why “the prior art would also have revealed that in making or carrying out [the claimed invention], those of ordinary skill would have a reasonable expectation of success” (*In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991)). Examiner has failed to do this, and therefore has failed to meet the burden of setting forth a *prima facie* case of obviousness. Moreover, as discussed above, Sampson is completely silent as to compounds meeting the limitations of component b) of Claim 1. As such, Sampson would not “have revealed that in making or carrying out [the claimed invention], those of ordinary skill would have a reasonable expectation of success,” thereby making any determination of obviousness over this reference improper.

Further, as stated above, Examiner must “consider any teaching or suggestion in the reference of a preferred species or subgenus that is

significantly different in structure from the claimed species or subgenus . . . [which] may weigh against selecting the claimed species or subgenus and thus against a determination of obviousness” (MPEP § 2144.08.II.A.4.(c), citing *In re Baird*, 16 F.3d 380, 382-83, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994)). Such adverse teachings abound in the disclosure of Sampson, making any finding of obviousness of the claimed subgenus again improper. For instance, in defining the possible second ethylenically unsaturated monomers of the Sampson invention, Sampson states that “[e]xamples of useful monomers having this part formula are styrene, vinyl toluene, methyl methacrylate, vinyl acetate and butyl methacrylate” (Sampson at 2:36-39), none of which fall within the claimed subgenus of a cycloaliphatic ester of an olefinically unsaturated carboxylic acid. Similarly, in all 24 of the Sampson Examples, not a single compound falling within the claimed subgenus is disclosed. Thus, Sampson not only fails to teach or suggest the claimed subgenus, but actually teaches that preferred species are not cycloaliphatic esters of an olefinically unsaturated carboxylic acids, which therefore “weigh[s] against selecting the claimed species or subgenus and thus against a determination of obviousness.” As such, a finding of obviousness of the claimed subgenus in view of Sampson would be improper.

In addition, use of a cycloaliphatic ester of an olefinically unsaturated carboxylic acid would not even have been obvious to try, again demonstrating the nonobviousness of the present invention. In *KSR Int’l v. Teleflex Inc.*, 127 S.Ct. 1727, 1742 (2007), the Supreme Court held that a claim can be found obvious if it can be shown that the claimed combination of elements was obvious to try, which can occur “[w]hen there is a design need or market pressure to solve a problem and *there are a finite number of identified, predictable solutions*” (emphasis added). Here, while a market pressure to develop (meth)acrylic copolymer coatings that possessed both excellent drying properties and hardness development did exist, there was not a finite number of identified, predictable solutions to this problem. Instead, there were a practically infinite number of possible solutions, since there are a practically infinite number of compounds which can be combined to arrive at (meth)acrylic copolymer coatings. Moreover, the disclosure of Sampson did very little to narrow this infinite field of possibilities,

stating only that “two or more ethylenically unsaturated monomers” are to be combined, “at least one of which contains an [sic] hydroxyl group” (Sampson at 1:13-15). This leaves open the entire field of non-hydroxyl containing ethylenically unsaturated monomers, which is an extremely large field. And, Sampson also does nothing to add predictability to the wide class of possible choices. Given such a disclosure, it would not have even been obvious to try the solution arrived at in the present invention, namely the use of cycloaliphatic ester of a free-radically copolymerizable olefinically unsaturated carboxylic acid, again demonstrating that Claim 1 of the present application should not be deemed obvious in view of Sampson.

Similarly, Sampson fails to teach the limitation of Claim 1 requiring the (meth)acrylic copolymer to be “free of epoxy-functional free radically copolymerizable olefinically saturated monomers,” and therefore again fails to make this claim obvious. As discussed above, “[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art” (MPEP § 2143.03, citing *In re Royoka*, 490 F.2d 981 (CCPA 1974)). Here, Sampson is completely silent on the issue of epoxy-functional monomers. As such, Sampson not only fails to teach this claim limitation, but also fails to contain even the slightest suggestion that epoxy functional monomers should be avoided. Thus, Sampson again fails to make obvious the present invention.

Further, because of Sampson's silence on epoxy-functional monomers, Sampson also fails to teach component c) of Claim 1, which recites “at least one additional free-radically copolymerizable olefinically unsaturated monomer which is different from component a) and b).” Since Claim 1 limits the (meth)acrylic copolymer to those containing no epoxy-functional monomers, it also limits all components of the copolymer, including component c), to non-epoxy-functional monomers. In contrast, Sampson contains no such limitation on the functionality of the monomers useful therein, and therefore fails to teach component c) of the present invention, as well. Thus, Sampson again fails to teach all limitations of Claim 1 and thereby fails to make this claim obvious.

For all the above reasons, Applicants submit that Claim 1 should be deemed nonobvious in view of Sampson. As all other claims are dependent upon, and narrower than Claim 1, Applicants assert that all pending claims should be held to be nonobvious in view of this reference.

In addition, even if Claim 1 were deemed obvious over Sampson, Sampson also fails to teach or even suggest the additional limitation of Claim 2, thereby making Claim 2 nonobvious in view of this reference. Claim 2 of the present application requires the hydroxy-functional (meth)acrylic copolymer A) to comprise “30-60 wt-% of component a), 15-40 wt-% of component b), 10-40 wt-% of component c) and 18-40 wt-% of component d), the proportions by weight of components a) to d) totaling 100 wt-%.” Such a limitation is nowhere taught in the disclosure of Sampson. Further, as the Examples of Sampson only disclose three-component (meth)acrylic copolymer compounds, such a specific combination of four distinct components is not even remotely suggested by this reference. Again, since a finding of obviousness requires that “all the claim limitations must be taught or suggested by the prior art” (MPEP § 2143.03, citing *In re Royoka*, 490 F.2d 981 (CCPA 1974)), Claim 2 should be held to be nonobvious over Sampson.

Moving now to the rejection of Claim 6 over Sampson in view of Thomas, given the adverse teachings of Sampson and Thomas, the additional limitation of Claim 6 would not have been obvious to one skilled in the art, thereby making this claim nonobvious over these references. As stated above, Examiner asserts that Sampson teaches all limitations of independent Claim 1 while Thomas teaches the additional limitation of dependent Claim 6, which specifically lists compounds from which component b) is to be selected. However, because of the adverse teachings of Thomas and Sampson, one skilled in the art would not be motivated to combine their teachings, but rather would be discouraged from doing so, thus making Claim 6 nonobvious in view of these references.

Using Examiner's interpretation of the references, Sampson teaches the copolymerization of “two or more ethylenically unsaturated monomers at least one of which contains an [sic] hydroxyl group” (Sampson at 1:13-15) followed by reaction of this copolymer with a lactone compound (Sampson at 1:55-56). Thus,

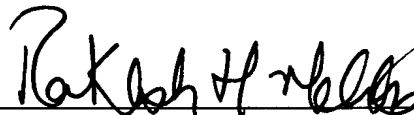
Sampson teaches a process wherein the lactone compound need not be separately reacted with a (meth)acrylate compound prior to inclusion of that (meth)acrylate compound in the polymer. In contrast, Thomas, which has a filing date 26 years later than that of Sampson, teaches a more complex process involving first reacting the lactone compound with a (meth)acrylate compound, then reacting that lactone-modified (meth)acrylate compound with the other monomers to form the polymer (5:16-21). Given that Thomas came later than Sampson, and therefore was aware of the teachings of the simpler method of lactone-modification employed by Sampson, Thomas impliedly teaches that lactone modification of the (meth)acrylate copolymer is not useful in that invention. As such, one skilled in the art would not be motivated to combine Thomas's teaching of the additional limitation of Claim 6 with Sampson's disclosure of the modification/polymerization process to arrive at the present invention, thus making Claim 6 nonobvious in view of these references.

Moreover, the Examples of the present application demonstrate that the modification/polymerization scheme employed in Thomas is inferior to that claimed in the present application. Example 1 of the present application discloses the preparation of a coating by the claimed method, while Comparative Example 6 discloses preparation of a coating using nearly identical components, but by a method synonymous to that disclosed in Thomas. As the Table on page 20 demonstrates, the coating produced by the presently claimed method is superior with regard to drying time, hardness, and scratch resistance to the coating produced by the method of Thomas. These superior results achieved by the presently claimed invention further demonstrate the nonobviousness of the present invention over the coatings of the cited prior art. For all these reasons, Applicants assert that Claim 6 should be deemed nonobvious in view of Sampson in combination with Thomas.

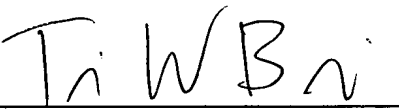
In light of the above, Applicants assert that all claims should be deemed nonobvious in view of Sampson, whether taken alone or in combination with Thomas. Applicants therefore respectfully request that the obviousness rejections to all claims be withdrawn and all claims allowed.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. In order to expedite disposition of this case, Examiner is invited to contact Applicants' representative at the telephone number below to resolve any remaining issues. Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

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